INFLUENCE OF INTRAVENOUS FISH OIL-ENRICHED LIPID EMULSION ON INFLAMMATORY RESPONSE IN CHILDREN POST-GASTROINTESTINAL SURGERY

ABSTRACT

Background: Surgery can increase morbidity and mortality due to the production of proinflammatory cytokines such as Interleukin (IL) -6, and tumor necrosis factor (TNF)-α. Intravenous fish oil-enriched lipid emulsion (FOLE) contains ω-3 which can reduce the release of proinflammatory cytokines. Influence of FOLE on modulation of inflammatory response compared to the standard Medium Chain Trygliceride (MCT)/Long Chain Tryglyceride (LCT) emulsion in children post-gastrointestinal surgery has never been done.

Objective: To explain the influence of FOLE on modulation of inflammatory response in children post-gastrointestinal surgery.

Method: A randomized controlled trial was conducted in August 2018 - January 2019 at Dr. Soetomo Hospital in children post-gastrointestinal surgery due to esophageal and intestinal atresia that requires parenteral nutrition at least for 3 days. Samples were divided randomly into MCT/LCT and FOLE groups. Laboratory and cytokines parameters are examined before and 3 days after surgery.

Results: Of all, 7/14 were male and 7/14 got FOLE. There were no significant differences in Hb, leukocyte, CRP, albumin, SGOT and SGPT levels in both groups. Triglyceride levels were higher in the MCT/LCT group than FOLE (P = 0.041) on day 3. The difference in IL-6 levels was significant between the two

groups before (p = 0.048), 3 days after surgery (p = 0.013) and differences in 3 days (p = 0.007). TNF-α levels were not significantly different compared to MCT/LCT at day-3 post surgery (p = 0.796).

Conclusion: FOLE can decrease IL-6 and reduce triglyceride levels compared to standard emulsions in postoperative children.

Keywords: Parenteral Nutrition, Lipid Emulsion, Intestinal Atresia, Esophageal Atresia